DOCUMENT RESUME

ED 174 624 TM 007 798

AUTHOR Wood, Carolyn J.; Fiedler, Martha L.
TITLE Conjoint Use of Inductive and Deductive Research Methodologies: Validating a Participant Observation Study.
PUB DATE Mar 78
NOTE 33p.; Paper presented at the Annual Meeting of the American Educational Research Association (62nd, Toronto, Ontario, Canada, March 27-31, 1978)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Affective Objectives; *Behavior Rating Scales; *Educational Research; Elementary Education; Elementary School Teachers; Group Dynamics; *Group Relations; *Observation; Principals; *Research Methodology; *Teacher Administrator Relationship; Validity
IDENTIFIERS Hit Steer Observation System; *Participant Observation; Qualitative Research

ABSTRACT

A system of interaction analysis, the Hit-Steer Observation System, was used to characterize interaction patterns of groups of teachers and principals. Evidence for an asymmetrically contingent pattern of interaction between the principals and teachers was provided by findings that principals made more verbalizations than teachers, as well as more influence attempts and directing attempts. They also refused to comply with others' influence attempts proportionately more than the teachers. When the number of verbalizations were held constant, however, the pattern of interaction of the two groups was similar. The results of coding the verbal interaction with this system illustrated the complimentary roles of qualitative and quantitative approaches to educational research. The hypothesis developed from the findings of a qualitative study of the educational task group was tested by a theory-based quantitative procedure, which provided support for the validity of the qualitative study findings. Joint use of these methodologies yielded a richer understanding of the data than either would have yielded alone. (RD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED174624

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CONJOINT USE OF INDUCTIVE AND DEDUCTIVE RESEARCH METHODOLOGIES: VALIDATING A PARTICIPANT OBSERVATION STUDY

Paper prepared for the

American Educational Research Association

Annual Meeting

Toronto, Canada

March, 1978

Carolyn J. Wood, Ph.D.
Department of Educational Administration
The University of New Mexico
Albuquerque, New Mexico

Martha L. Fiedler, Ph.D.
Department of Educational Foundations
The University of New Mexico
Albuquerque, New Mexico

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Carolyn Wood

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

Printed in the U.S.A.

TM002 698

INTRODUCTION

As researchers we are often prone to criticize our colleagues for viewing research investigations in terms of either qualitative (inductive) or quantitative (deductive) procedures. We are particularly critical when their chosen strategies or "ways of knowing" do not correspond to our own preference. Zelditch (1969) conceptualizes this spirited controversy in the following manner:

> To some extent the battle lines correlate with a relative concern for "hardness" versus "depth and reality" of data. Quantitative data are often thought of as "hard," and qualitative as "real and deep"; thus if you prefer "hard" data you are for quantification and if you prefer "real, deep" data you are for qualitative participant observation (p. 6).

Over the years several researchers of both persuasions (Bridgman, 1959; Campbell, 1974; Homans, 1962; McGrath and Altman, 1966; Polanyi, 1958; Trow, 1969) have indicated the futility of these dualistic debates. They have suggested recasting the controversy into discussions regarding the relative usefulness of different methods for the study of specific problems or types of problems. It would seem to follow from this suggestion that researchers should embark on cooperative ventures in which both qualitative and quantitative procedures would be utilized. The investigation accomplished through one methodology could provide leads for the other to follow. Similarly, one could provide a validity check on the other. It was with these purposes in mind that the following study was undertaken.

The qualitative researcher attended twenty-four meetings of a natural educational task group, the Open Education Evaluation Group (OEEG). The meetings were tape recorded, and the tapes were transcribed. Using the resulting transcripts (and several other forms of data), the qualitative researcher generated several hypothesized reasons for the failure of the members of the group to accomplish their goal. The quantitative researcher then tested the validity of one hypothesis induced from the data. This investigator systematically coded interaction in

45-minute segments from a sample of twelve group meetings using the Hit-Steer Observation System. This coding scheme is derived from the social psychological theory of interpersonal interaction formulated by Jones and Thibaut (1958).

THE PARTICIPANT OBSERVATION STUDY

Methodology

Similar to the Campbell and Fiske (1959) position that in quantitative studies researchers should utilize multiple independent measures when assessing multiple traits, several qualitative researchers (Denzin, 1970; Glaser & Strauss, 1967; Smith & Pohland, 1969; Webb, et al., 1966; Zelditch, 1969) have suggested that a blend of methodologies be combined under the rubric of participant observation. Denzin refers to this blend as a "triangulation of methods"; Glaser and Strauss speak of it as "slices of data." By whatever name it has come to be called, however, it is suggested that in addition to direct observation, participant observation includes one or a combination of the following data-gathering techniques: formal and/or informal interviewing, document analysis, enumeration or sampling and genuine social interaction with the subjects.

The data utilized for the qualitative portion of this investigation were collected in a variety of ways. The researcher observed all twenty-four meetings held by the OEEG over a fifteen-month period. Additionally, each of the eight group members was interviewed twice, and documents pertaining to the group were collected. The actual proceedings of the meetings, special events and interviews were recorded on a tape recorder. The tapes were then transcribed. Supplemented by field notes, summary observation notes and the collected documents, the transcripts provided a data base which was as close to the actual proceedings of the group as possible, barring the use of several strategically placed tape recorders or video tape cameras. In brief, every effort was made to obtain a

complete and accurate record both of the activities in which the group was involved and of the group members' attitudes toward these activities.

The qualitative researcher assumed the role as the group's recorder after a group member, who had served in this capacity for one meeting, decided she could not be an active and effective contributor to the group discussions as long as she assumed these secretarial functions. The group members agreed to allow the researcher to study the group as a quid pro quo for writing and distributing the meeting minutes. The research role assumed by the investigator was that of observer-as-participant (Gold, 1969; Junker, 1960). In this role the observer refrained from any verbal interchanges with the participants during the meetings. Having neither a personal voice in the substantive areas of the discussions nor a personal stake in the outcomes of the group's work, the observer/recorder could be said to have been "in" but not "of" the group.

The analysis stage of this portion of the investigation was focused on identifying several underlying patterns in the form of hypotheses and propositions which would indicate the major reasons why the members of the OEEG were unable to develop an educational product. Utilizing a perspective which was not only informed by the events which occurred in the group and by the participants' viewpoints of these events but also by the investigator's observation and the literature on group and organizational behavior, the researcher identified several broad themes which appeared to have implications for the group's lack of success in developing an innovation.

The process of identifying these patterns, hypotheses and propositions occurred in the following manner. All of the data were reviewed, and much of it was cut up[1] and placed on 4 X 6 inch cards. A two to three word heading was

---

[1]Three copies were made of all pieces of data, including the verbatim transcripts. This allowed the investigator to cut various pieces of information from one copy. It also allowed for the ability at a later time to return to the original data to determine that the information was not used out of context.

placed on each card to summarize the information it contained. Some of these cards were then placed into what might be called "event" categories. Additionally, in the process of reviewing the data, "interpretive insights" (Smith & Geoffrey, 1968) began to emerge which suggested the existence of several conceptual categories into which the data seemed to fall quite naturally. As a result, several of the cards in the event categories were duplicated or removed and placed into these conceptual categories. In the beginning, the conceptual categories were by no means either well defined or delimited. As a number of instances of the same or similar phenomena were grouped together, however, concepts which referred to particular features of a phenomenon began to take shape. The incidents which comprised a particular category, therefore, became the bases upon which several concepts were formulated. They were continually compared with one another to make certain they were characteristic illustrations of the same concept or phenomenon.

In the process of writing the descriptive vignettes (Smith & Schumacher, 1972), the researcher became aware of additional dimensions and properties of the concepts which had been identified. The conditions under which various phenomena were produced and minimized and the relationships between various properties of various phenomena became evident. As such, the process of explanation was very similar to what Glaser and Strauss (1967) refer to as the "constant comparative method" of analysis. Glaser (1969) suggests that as the inspection process continues, "the constant comparative units changed <u>from</u> comparison of incident with incident <u>to</u> incident with properties of the category which resulted from initial comparison of incidents" (pp. 221-222). As the concepts became more well defined and delimited, the investigator became more comfortable that there existed a "goodness of fit" between the properties of incidents and their definitions. The final step in the analytical process was formulating the

hypotheses and propositions based upon the identified relationships between the concepts.

Data Source

The group upon which this investigation focused was composed of eight people from five elementary schools in a large metropolitan area. By virtue of their formal positions in these schools, the members represented two hierarchically differentiated status positions: three of the group members were principals and five were teachers. These participants, who shared an interest in open education and a concern about evaluating children's affective growth, met regularly after school hours to develop an instrument to assess affective growth in children. The group members chose to adopt participatory decision making strategies in their deliberations: no one was designated chairperson of the group; decisions were generally made by consensus procedures; each member was to have an equal voice in deciding matters which came before the group; no person in the group was to have more formal authority than any other member.

Several conditions seemed likely to facilitate the OEEG's work. Rather than having its objectives and procedures prescribed by other persons, the specific task and the processes the group would employ in attempting to accomplish the task were defined by the members. Based on the principle that people tend to support what they create, it was assumed the members would be committed to their work in the group. The members agreed to give the meeting times a high priority and to miss other meetings to attend the group's sessions. Adequate financial resources were available to the OEEG in the form of a $5000 foundation grant. This money was to be used to purchase materials, to pay the travel and lodging expenses of the members for retreats and trips they might choose to take in pursuit of the group's objectives and to provide honoraria and expenses for outside consultants who would help the group with the more technical aspects

of instrument development. And finally, the group was composed of individuals who had extensive training in education. All the members were working on or held master's degrees. Two members had earned doctorates.

Though the group had the above mentioned advantages, the members failed to develop an instrument or any other product after fifteen months of working. Between September, when the group first convened, and January the group members struggled to define their task. At a two day retreat in January the members decided to develop an instrument to assess responsibility in children in open and conventional classrooms. By the beginning of March they had developed a partial checklist instrument. In April and May their energies were deflected from completing the checklist instrument as they concentrated on writing an article based on their work. During mid-May their focus changed again, and they developed an inservice game on responsibility which, in the words of the members, "bombed" in a pilot test. Following a summer break, the group again changed its direction. The members met with an outside consultant and decided to begin observing children's behaviors in classroom settings. In brief, by December of the second year, after fifteen months of work the group had developed no finished product.

The analysis of the inductive investigation yielded several hypothesized reasons for the failure. One potent hypothesis suggested that hierarchical differentiation inhibited the members' ability to work together as equals. Differences in the ascribed status positions of the teachers and principals appeared to interfere with the free exchange of ideas and with the evaluation of suggestions which were posed by particular members.

Findings

The three principals and five teachers who comprised the group were philosophically committed to utilizing participatory strategies in their meetings.

The principals were in fact so committed to the egalitarian spirit of participatory decision making that they made conscious efforts not to be perceived as administrators or as the administrative chairperson of the group (i.e., Tom Eberhart, a principal, made the following statement during the first interview: "The first few meetings were at my house. I wanted to get them out of my house because when they're here, that makes me the leader" p. 1). There was, however, a great deal of evidence to suggest that the members who were principals of their respective schools had considerably more influence in the group than did the members who held teaching positions. There was also evidence to suggest that the group's progress was hindered by the principals' general refusal to accept those functions usually acknowledged as administrative or group maintenance (i.e., initiate structure, solicit contributions to the discussions, provide clarification, summarize member contributions and test for a sense of the members' positions on various issues).

In the next several pages instances from the qualitative/inductive study will suggest both that an idea had a better chance of being accepted if it was proposed by one of the principals and that the principals generally were viewed as the leaders of the group even though they did not like to acknowledge this.

Several pieces of data suggest that during the first year of the group's operation an idea generally had to emanate from one of the principals before it was accepted.[2] The most potent illustration of this pattern can be seen in the manner in which the group decided to change its focus from that of attempting to develop a checklist to assess affective growth in children to that of trying to

---

[2] As an aside it is interesting to note that when Hank Schaefer (teacher) assumed the role of "coordinator" of the group during the second year, his suggestions were ultimately approved though not without several heated discussions. The principals appeared to lose a portion of their influence when Hank assumed this position.

create a game to be used in teacher meetings to heighten teacher awareness of the importance of affective development in children.

During the first few meetings of the OEEG, a consistent suggestion by Suzie Ferguson (teacher) was noted. Suzie frequently stated that the group should work to create a product which would focus on teacher development--to make teachers more aware of the ways in which affective growth is manifested in children--rather than work to develop a tool to assess children's affective growth. The following quotes will furnish the reader with an indication of her persistence.

Meeting of November 14:

> I thought that [the product on which we are working] was a useful vehicle for helping teachers to become aware of some traits and how they might be evidenced, not to try to find a lot of kids who best exhibit them. I see it as a way to get teachers to start thinking about things. (p. 47)

Meeting of November 27:

> Are you trying to work on something that would get every kid to be aware in the same way? Or, are we trying to help teachers sense different ways of being aware? (p. 17)

Meeting of December 5:

> I am still unclear on what we are doing, about what our goal is, or if we even have a common goal. Now, it may be we do, and I would like to hear it stated somehow because I still come back with the same question. Are we interested in evaluating open education classrooms and proving something about them as a primary goal, and then [having] our measurement directed toward that? Or, are we interested in observing contented kids? Or, are we interested in stirring up teachers and getting them to look at things differently? (pp. 13-14)

Meeting of December 20:

> As a possible tool or some part of the tool, we could have some questions that a teacher would have in front of him or her that would make the teachers more conscious of how they might react were they in the child's position. (p. 8)

Retreat (January 12):

> A good instrument that talks about kids ends up talking about teachers . . . . I'll go along with choosing the kid focus if that is what we choose, but in my mind there is going to keep being what is this going to do for teachers. (p. 8)

Suzie Ferguson was persistent in verbalizing her desire that the OEEG try to create a product which would "speak to" teachers rather than one which would attempt to measure student growth. Her attempts to sway the focus of the group were, however, unsuccessful. It was suggested during the group meetings that a by-product of developing an "instrument" to measure pupil growth would naturally alert teachers to the importance of affective development in children. Therefore, during the January retreat, the OEEG voted to focus on developing an "instrument."

It appeared as if this issue had been settled. From January through the first part of May, the group behaved as if its primary goal was to construct a checklist which would assess the development of responsibility in children. At the May 17 meeting, the group members began to refine a portion of the checklist, which was developed during the first week of March, by discussing each of the items. During the group's review of the fourth item, Brad Stoddard (principal) displayed a great deal of excitement about an idea which had been proposed by several persons during the session at the Tri-State Conference at which he and Jason McCord (principal) had presented a synopsis of the OEEG's work. Brad suddenly snapped his fingers and exclaimed, "We may have our exercise" (Transcript 5/17/73, p. 14). Several minutes later he said:

> So what we're coming down to is the fact that the process is the key thing here . . . . Which means maybe what we're really coming around to is saying what we're really after is an in-service thing more maybe than it is a thing [instrument] to be used in the classroom . . . . At the Tri-State Conference, we were saying that we were trying to develop an instrument that a teacher could use to assess the development of responsibility in the kid. One of their [the people attending the session at the Tri-State Conference] key things [suggestions] was that we should . . . that it's great, but they all right away saw the opportunity for a teacher education tool and that there should be an exercise that a principal and a staff could do before they get to the instrument. (Transcript 5/17/73, pp. 18-19)

The other group members voiced their excitement about the prospect of turning the "tool" on which the group had been working into a "game" to be played by teachers in staff meetings. The focus of the group's efforts was, therefore, changed.

One interesting phenomenon about this change, however, was that Brad Stoddard and Jason McCord did not cite the fact that this suggestion was the same as that offered some months prior to that time by Suzie Ferguson. Rather, this idea was treated as if it had originated at the Tri-State Conference.

Just as interesting as the fact that the idea was not adopted when Suzie Ferguson suggested it was the fact that when Hank Schaefer (teacher) and Ron Richards (teacher) reported on their visit to National Education Evaluation Consultants at the February 22 meeting, they stated that a consultant at NEEC with whom they had talked had suggested that the group "stop looking at students exclusively" and begin to look at teachers as change agents in the classroom (p. 18). Brad Stoddard's (principal) suggestion at that time was reminiscent of what had been said previously to Suzie:

> We've already said a probable secondary outcome of what we may come up with will have some effect on teachers. So we will be dealing with it in that way even though it isn't our primary objective. (Transcript 2/22/73, p. 18)

During his second interview, Hank Schaefer referred to the interaction which took place at the February 22 meeting in the following manner:

> Ron and I brought back from NEEC that one of the consultants there thought it would be interesting to deal with the child after you dealt with the teacher first. So that's the point of view that I see us [following] now. But Brad wanted to keep playing around with what we had [the instrument] in February. (p. 6)

The data seem to suggest that when the recommendation for creating a product for teacher education, rather than for assessing pupil growth, emanated from teachers, it was not accepted. On the other hand, when two principals, Brad Stoddard in particular, recommended the same idea, it was acted upon and subsequently became the primary focus of the group's work.

Several other illustrations of the principals' influence on the group will be briefly recounted for the reader. First of all, two teachers consistently spoke of the importance of creating an "instrument" which would yield valid and

reliable results. Two of the principals, on the other hand, suggested that it was not necessary to attend to such issues since the "instrument" to be developed would be a unique type of product which should be completely understandable to the practitioner.[3] The group as a whole never gave serious consideration to the validity and reliability questions.

Second, the discussions about whether the "instrument" would assess pupil growth in only "open" classroom or whether it could be used in all classrooms were interesting from the standpoint of teacher and principal influence in the group. One might suggest that LaVern Phillips (teacher) exerted a great deal of influence in the group on this question prior to and during the January retreat (she frequently voiced her opinion that the "instrument" should be applicable to children in the more "traditional" classroom as well as to those in the "open" classroom) because during the retreat the group did vote to include attention to pupils in all types of classrooms. The analysis suggests however that during the first five months of its existence there appeared to be a tendency within the OEEG to compromise in a way so as not to exclude any of the group members from potentially being able to use the proposed "instrument" in their own schools. By limiting the scope of the "instrument" to "open" classrooms or to classrooms moving in that direction, the "instrument" would not in the minds of some of the members have been as adaptable to their own school situations. During the meeting on February 5, however, Jason McCord (principal) urged the group to narrow its scope and to concentrate on developing an "instrument" for use in the "open" classroom. This suggestion was followed.

A third issue, that of deciding on the content of the "instrument," also appeared to be decided on the basis of the influence of the principals in the

---

[3]They also indicated that the group did not possess either the knowledge or requisite skills to attend to "instrument" validity and reliability.

group. Tom Eberhart (principal) had been quite consistent from the beginning that the group focus on children's "acceptance of responsibility." None of the members appeared to be particularly opposed to this direction, but Brad Stoddard and Jason McCord did not lend their support to this focus until late December and mid-January. At the December 20 meeting, Brad reluctantly suggested that the group focus on "responsibility." At one point during the January retreat however, he agreed with Suzie Ferguson's suggestion that the group was not yet ready to label the content focus. After several charts synthesizing the several discussions which revolved around the concept of "responsibility" had been constructed, Brad indicated that he was again interested in the "responsibility" focus. It was not however until Jason McCord stated, "I think that I've reached the point where I think responsibility is the total umbrella," that "responsibility" was clearly established as the content focus of the group.

The data from the observations of the meetings indicate that the influence of the administrators was a noticeable force in moving the group. The following statements give evidence to suggest that participation and influence in the group were not necessarily perceived as being based on the merit of an idea. In the following statements Hank Schaefer (teacher) suggests that groups composed of administrators and teachers do not work. He also indicates that influence in the OEEG was essentially a function of the professional position held outside the group:

> The committees I have been on that have produced a usable, workable product, where there was no bull shit and no phoney professionalism, have been committees composed of all teachers. Or I've seen committees of all administrators do the same thing . . . . I think it has to do with the traditional roles of the teacher and administrator; and no matter what Tom Eberhart and Brad and Jason do in order to facilitate harmony among the teachers, there's still that basic difference of who they are . . . .
>
> I thought Ron and Suzie's instrument [the one they developed together outside of the group meeting on February 10] had little impact on the group . . . . When they brought it back to the group as a whole, they [the group members] really dropped it. I think it was the whole pecking order thing involved. It did not emanate from Tom or Brad or Jason . . . .

> Leadership in our group always was a function of how we were when we began. If you were an administrator, you were a leader. If you were a teacher, you were not a leader. (Second Interview, pp. 11, 23, 35)

In a further discussion about the general inability of the teacher members of the OEEG to exert leadership in the group, Hank contrasted LaVern's leadership abilities in a group composed of teachers with her leadership in the OEEG.

> Something happens to some people which makes them a bona fide leader that doesn't happen to others. It has something to do with the way you role play . . . . What she [LaVern] was saying was that she doesn't have any confidence in herself in this group. In another group she might have enough. I saw her in another group. The amazing thing is that I saw LaVern do a workshop, a beautiful workshop; and I saw her in a leadership position with these other teachers, a really effective leadership role . . . . So I saw her as having this confidence that she could be a leader and deal with those teachers but not having enough confidence to see herself as leader in this group. (Second Interview, pp. 36-37)

When speaking about the role she generally assumed in other groups, Suzie Ferguson (teacher) stated that she usually was much more serious and pushed very hard in those groups. In reference to the role she played in the OEEG, Suzie made the following comments:

> I don't see that I played that role in this group, partly because I felt that I was with a group . . . . I trusted them sort of automatically because of their labels like Head of Whitworth School, Head of Beechmont School. I would automatically "trust" may not be the right word. I would automatically presume that they could be the experts or that if they weren't the experts, then that was their tough luck; and I didn't have to jump in there and lead everybody to some sort of mecca. That was their role because they had these titles. (Second Interview, p. 3)

In brief, the analysis suggests that the principals were generally viewed as the "leaders" of the OEEG. Their suggestions as a rule were those which carried the most weight. The analysis also suggests that the principals had a desire to avoid being viewed as the "leaders" of the group. The differing meanings applied by various people in the group to the term "leader" is instructive. In their own minds, the principals appeared to differentiate between the task maintenance role and the role of having an influence on the substantive aspects of the group's discussions. To assume the task maintenance function was to

assume the role of the "leader" of the group. " suggest various topics for discussion and to encourage the other members to follow these suggestions meant that they were functioning as contributing members of the group rather than as "leaders." On the other hand, the teacher members of the group did not appear to make this distinction. In viewing the principals as the "leaders" of the OEEG, some of the teachers indicated their expectation that the principals should programmatically assume the task maintenance functions of the group. When they did not attend to the task maintenance functions, these functions were generally either not performed or they were performed rather ineffectively. As the principals were viewed as the status leaders of the group, it was difficult for any of the teacher members to effectively assume these roles. (See Wood, 1977, for a more in-depth discussion of this phenomenon in the OEEG.)

In summary, several pieces of evidence (the observation of the manner in which several substantive issues were decided in the group and several comments by the members themselves about their perceptions of the manner in which hierarchical differences appeared to affect the group) indicate that a person's position outside the group, which had little if anything to do with the ideas being espoused by the members, exerted a substantial influence on the patterns of both participation and decision making. The members were to have an equal voice in the decisions being made. There is, however, evidence to suggest that the principals did exert more influence on the substantive aspects of the group's work than did the teacher members. The evidence also suggests a tendency on the part of the teachers to expect the principals to perform the task maintenance functions. In theory the OEEG was to function as a participatory group in which both task and maintenance roles were to be diffused among all of the group members without regard to position held outside the group. In practice, however, the teachers looked to the principals as the persons who were or should be the "leaders" on both dimensions.

QUANTITATIVE VALIDATION OF THE QUALITATIVE STUDY

Methodology

Instrument. To test the hypothesis regarding the inhibitory effects of status differences among the members on the group's functioning, a system of interaction analysis derived from the social psychological theory of interpersonal interaction and influence was used. The interaction coding system, called the Hit-Steer Observation System, was based on Jones and Thibaut's (1958) discussion of interaction patterns. They distinguished two types of patterns: "reciprocally contingent," in which the behavior of each person is contingent on the behavior of the other, and "asymmetrically contingent," in which the behavior of one person depends on the behavior of the other but the other's behavior is determined independently. Asymmetrically contingent interaction often occurs in settings with a hierarchical organization like classrooms or the military.

The Hit-Steer Observation System permits characterization of interaction patterns as asymmetrically or reciprocally contingent by assessing the extent to which each person verbally attempts to influence another ("hits" the other) and whether the other person changes his behavior contingent on the hit (is "steered") or rejects the hit ("no steer"). This observation system has been used in classroom research (Fiedler, 1975; Cohen, 1978) where differences in teacher-student interaction patterns were related to differences in teacher personality and outcome variables, including student achievement and classroom climate. The present study is the first in which the system has been used outside the classroom.

The Hit-Steer Observation System originally consisted of two parallel sets of codes, with four behavior categories in each set. The first set is used when the teacher tries to direct the students' behavior; the second set, when a student

attempts to influence the teacher's behavior. Each set includes one category for influence attempts (Hits) and three categories for responses to the Hits: Steer, compliance with a Hit; No Steer, refusal to comply with a Hit; and Conditional Steer, lack of a clear compliance or refusal to comply (Fiedler, 1975).

Subcategories of the Hit category were defined separately for teachers and for pupils in subsequent research with the instrument (Cohen, 1978). Hit subcategories used by teachers include: Imposing, which limits the student to certain behaviors, responses, or standards of performance imposed by the teacher; and Inviting, which opens to the student the opportunity to hypothesize or express his own opinion. The three Pupil Hit subcategories include: Expressing, stating an opinion or feeling about the topic; Attending, requesting information or offering help or advice; and Noise, requesting repetition of previously given material, wise-cracking, or other attention-getting behavior.

For use in the present study the Hit-Steer Observation System was modified in several ways. Because all of the participants in the task groups were purportedly of equal status, the Hit subcategories for teachers and pupils were combined, so that any participant's Hit could be scored in any one of the five subcategories. In addition, the Steer category was sub-divided into two types: Answer, a simple response to a request for information or clarification (most often an Attending Hit); and Agree, an explicit agreement with a preceding statement (usually an Expressing Hit).

A No Steer was scored for an outright disagreement with a procedure or preceding statement (the behavioral refusal to comply with a Hit, scored for students in a classroom setting, was not used for this small group situation). Finally, the Conditional Steer category became equivalent to a No Response score and was used in two cases: for an individual, when he or she was specifically addressed and did not respond; and for the group, when a silence of five or more

seconds ensued after a Hit requesting comments or information from other members of the group. Examples of the scoring categories are given in Table 1.

Insert Table 1 about here

Hypotheses

The findings of the qualitative study suggested a pattern of asymmetrically contingent interaction between the principals and the teachers. Comments made during the group's meetings as well as during the interviews indicated that the teachers looked to the principals as leaders. The teachers seemed to assume that because the principals performed such leadership behaviors as directing activities and formulating policy every day as heads of their schools, they should also perform these behaviors in the OEEG. And, as reported earlier in the paper, at least one teacher believed that the principals had more expertise to bring to the task, so that she felt she did not need to exert as much leadership herself. Thus, the predominant operating assumptions among the teachers cast the principals into leaders' roles and the teachers into followers' ones.

Within the context of the Hit-Steer System, more talking was seen to reflect more influence: Hits, particularly Imposing and Expressing Hits, seemed to reflect best the directing and policy-formulating tasks of leaders. Attending Hits and Agree Steers seemed to reflect "followership behaviors" of asking leaders about their policy recommendations and serving as "Yes Men." For these reasons, the following hypotheses about the group's interaction patterns were made:

(1) Principals would make more total scored verbalizations than teachers;

(2) Principals would make more Hits and more Imposing and Expressing Hits than teachers;

(3) Teachers would make more Attending Hits and Agree Steers than principals.

Table 1

Examples of Scoring Categories in the Modified Hit-Steer Observation System

Inviting Hit	- "What'll we work on tonight?" "Should we go on with the game or try something else?"
Imposing Hit	- "We need to make an agenda before the next meeting." "You should re-write that section of the proposal."
Expressing Hit	- "I don't think we've done much work since the retreat." "Why don't we rank order these to see if there are any differences?"*
Attending Hit	- "Did you read the minutes?" "Do you mean we can't handle the validity part or we don't have to worry about it?"
Noise Hit	- "Tell me again when the next meeting is." "What do I think? I think these are great rum balls."
Answer Steer	- "Yeah, it was soundly rejected in its present form." "We've spent less than half the budget."
Agree Steer	- "I agree with that." "I think she has a point."
No Steer	- "No, I don't go along with that." "Well, I don't agree with you. I think we should continue with our original plan."
No Response (Conditional Steer)	- Individual: person addressed doesn't respond; Group: silence of five or more seconds following a Hit requesting comments or information from other group members.

*Note: This comment is made as a <u>suggested</u> activity, not an <u>imposed</u> one, so it is scored as an Expressing Hit rather than an Imposing Hit..

Procedure. The 24 group meetings took place over a course of 15 months. This time period was divided into three phases: Fall I, Spring, and Fall II, with 8, 12, and 4 meetings respectively. Half of the meetings of each phase constituted the sample (4, 6, and 2 respectively). The first 45-minute portion of those meetings was scored using the Hit-Steer System.

Meetings were selected according to three criteria: (1) all or most of the members were present; (2) non-members of the group were not present (except in one case); and (3) meetings were scattered throughout each time phase (e.g., one meeting from each month in each phase where possible). The first 45-minute portion of each meeting was scored in an effort to control for potential differences in types of interaction within a meeting. That is, it would be difficult to start coding interaction at the same point in each meeting except at the beginning.

The scorer used both the audio tape recording and the typed transcript of each meeting for categorizing the interaction. In case of disagreement between the two, the scorer used the audio tape recording rather than the transcript. Interaction that could not be clearly heard was not scored, nor was conversation unrelated to group task or process (e.g., discussion of members' vocations, illnesses, new jobs, etc.). The scorer had no knowledge of the identity or status of any of the group members (except as alluded to in the tapes and transcripts).

Each self-contained utterance or "turn" was scored into one or more categories, depending on content. For example, "I agree with you. But I think we might go farther and explicitly tell them how this connects with last year. What do you think about that approach?" This "turn" in speaking would be scored Agree Steer (first statement); Expressing Hit (second statement); and Inviting Hit (third statement). On the other hand, some very lengthy "turns" were scored

simply as an Expressing Hit because they contain only the one type of interaction category. Interruptions were noted, as were changes in the topic of conversation. After interaction in the sample meetings had been scored, the data were entered into an 8 x 11 matrix to permit calculation of the numbers of influence attempts and responses made by each group member.

Findings

The results of scoring the verbal interaction among the group members is shown in Table 2, where the three principals are listed first, followed by the

---

Insert Table 2 about here

---

five teachers. Comparing the results of the two status groups, one can see that the verbalization pattern of the most talkative teacher, Hank Schaefer, resembles that of the two more verbal principals, Brad Stoddard and Tom Eberhart, while that of the least talkative principal, Jason McCord, resembles that of the teachers.

The results lend support to Hypotheses (1) and (2): the principals talked much more than the teachers and made more Hits and more Imposing and Expressing Hits than the teachers. Table 3 shows the results as totals in each coding category for the group of three principals and five teachers on the left side.

Insert Table 3 about here

On the right side are shown the mean number of scored verbalizations in each category per meeting for the two status groups.

The figures on the right side of Table 3 were adjusted for differences in number of members of each status group and differences in number of meetings attended by members of the groups. The calculations involved summing the number

Table 2

Total Scored Verbalizations

	HITS						STEERS			NS	NR
	INV	IMP	EXP	ATT	NOI	TOT	ANS	AGR	TOT		
Brad Stoddard (Principal)	9	4	171	46	18	248	59	30	89	28	1
Tom Eberhart (Principal)	5	7	107	51	13	183	19	20	39	17	3
Jason McCord (Principal)	0	1	50	13	17	81	23	17	40	5	0
Hank Schaefer (Teacher)	4	4	102	17	14	141	56	21	77	19	0
Suzie Ferguson (Teacher)	3	2	64	43	10	122	9	7	16	13	0
Karen Williams (Teacher)	7	0	11	13	0	31	4	3	7	4	0
LaVern Philips (Teacher)	1	1	29	12	3	43	10	3	13	17	0
Ron Richards (Teacher)	3	1	55	11	2	73	25	4	29	8	1

Table 3

Total Number of Scored Verbalizations
and Mean Number of Scored Verbalizations Per Meeting

	Total Number		Mean Number	
	Principals	Teachers	Principals	Teachers
Total	734	616	24.5	12.5
Hits	512	410	17.1	8.4
Inviting	14	16	0.5	0.4
Imposing	12	8	0.4	0.2
Expressing	328	261	10.9	5.3
Attending	110	96	3.7	2.0
Noise	48	29	1.6	0.6
Steers	168	142	5.6	2.9
Answer	101	104	3.4	2.1
Agree	67	38	2.2	0.8
No Steers	50	61	1.7	1.2
No Responses	4	1	0.1	0.0

of meetings attended by the three principals (30) and dividing into the principals' total scores; similarly, the total number of meetings attended by the teachers (49) was divided into the teachers' total scores.

Comparing the mean (adjusted) figures on the right side of Table 3, one can see that the principals made about twice as many verbalizations in nearly every coding category as the teachers. The disproportionate talking by principals is also clearly shown in the total figures on the left side of the table: the three principals made more comments than the five teachers in eight of the 11 categories. Chi-square analyses of the total scores for the two groups for Hits; Steers; Expressing, Attending, and Noise Hits; and Agree Steers were significant at $p < .001$ level. Hypothesis (3), however, was not supported. The expected "followership behaviors" of the teachers, Attending Hits and Agree Steers, were made more frequently by the principals (part of their overall verbal blitz during the meetings).

Thus, evidence for an asymmetrically contingent pattern of interaction between the principals and teachers is provided by the findings that the principals made more scored verbalizations than the teachers, and significantly more influence attempts and directing (Imposing) and expressing influence attempts than the teachers. They also refused to comply with others' influence attempts proportionately more than the teachers.

To compare the distribution of total Hits and Steers into the subcategories for each status group, the percent of total comments falling into the subcategories was calculated separately for principals and teachers. These figures are presented in Table 4. As can be seen, the distribution of Hits into the five subcategories

---

Insert Table 4 about here

Table 4

Percent of Types of Hits and Steers

	Principals	Teachers
Hits		
Inviting	3%	4%
Imposing	2%	2%
Expressing	64%	64%
Attending	21%	23%
Noise	9%*	7%
Steers		
Answer	60%	73%
Agree	40%	27%

*May not sum to 100% because of rounding.

is nearly indentical for the two groups. There is some discrepancy between the principals and teachers in the distribution of Steers, with teachers making proportionately more Answer Steers and fewer Agree Steers than principals. Thus, when the number of verbalizations was held constant, the pattern of interaction of the two status groups was remarkably similar.

DISCUSSION

The purpose of this paper was to illustrate the complementary roles of qualitative and quantitative approaches to educational research. An hypothesis developed from the findings of a qualitative study of an educational task group was tested by a theory-based quantitative procedure. The results of the quantitative study provide support for the validity of the findings of the qualitative study.

More specifically, the results of coding the verbal interaction of the group members by the Hit-Steer Observation System lent confirmation to the hypothesis developed by the participant-observation method of unequal status among the members. But the hypothesis was not unequivocally supported, and several aspects of the study which bear on the outcome need to be clarified.

First, the procedure of scoring the first 45-minute period of the meetings may have yielded data different from that in later portions of the meetings. Although this period was chosen to control for phase of meeting, there were varying portions of the early period spent in discussion of irrelevant topics before the members tackled task-related issues. For example, in the January 29 meeting, the first 35 minutes of the 45-minute period contained irrelevant--and unscorable--verbalizations, whereas in later portions of the meeting, task-relevant discussion predominated. Subsequent studies might, therefore, profit from sampling interaction from the middle of a session.

A second difficulty arises from the nature of the Hit-Steer Observation System, in that the system does not provide for distinguishing between differences

in the value or importance of the content of different Hits and Steers. It is based on the assumption within quantitative research that the greater the number of certain behaviors or events, the greater their importance. This assumption can be contradicted in everyday experience, where a single unusual event or behavior is more noticed and may therefore have more impact.

Further, the Hit-Steer System does not at present permit a distinction between Hits made in the process of discussing an issue and those made in the resolution of it. Thus, three teachers may make Expressing Hits in support of some issue, each of which may be followed by an Agree Steer by a teacher. But when a principal then makes a similar Expressing Hit, "I think it's a good idea for the group to focus on a game," that single Hit by a "leader" may resolve the issue.

By creating all Hits equal, the coding system distorts the impact of some Hits by enhancing or reducing their influence on the people involved and by meshing discussion and resolution Hits. This problem is particularly important since, as reported in the findings of the qualitative study, ideas were sometimes accepted as policy not on the basis of their merit, or of the number of times they were put forth, but on the basis of who expressed them.

Future studies would be strengthened by using other ways of coding the data as adjuncts to the Hit-Steer System. Criteria to permit differentiation of discussion and resolution Hits would be easier to develop than those for assessing the value or importance of individual Hits, but both would be helpful. In addition, a quantitative assessment of the length of "turns" by the various participants could also shed light on the relationship between status and influence in such groups.

Finally, the method for analyzing data scored with the Hit-Steer Observation System is based on an interaction pattern of one "turn" each between two people.

This approach has worked well in the classroom, but many interaction sequences within this task group were longer than two turns and some involved more than two people. Thus, understanding the speaker-respondent interaction patterns of non-classroom groups requires a more elaborate procedure for analysis. Methods of analyzing extended behavioral sequences developed by ethologists (Altmann, 1974), such as sequential sampling (Omark, Fiedler, and Marvin, 1976), may provide a model for analyzing extended verbal sequences.

CONCLUSIONS

The Hit-Steer Observation System appeared to fit the requirement to validate the hierarchical differentiation hypothesis in the study of the OEEG. Additional hypotheses derived from the qualitative study suggests other reasons for the OEEG's failure to develop a finished product: (1) the members' attempts to satisfy self-oriented needs appeared to interfere with their ability to attend to the task; (2) the participants experienced difficulties in using consensus decision making; (3) several of the members seemed to, perhaps unconsciously, keep the group's discussions at an abstract level of conceptualization; (4) the members avoided the expression of conflict which, if resolved successfully, might have furthered the group's work. Systematic observation systems yielding quantitative analyses could prove useful in validating these hypotheses. The use of such instruments could also provide other interesting analytical leads to follow.

These investigators suggest that the joint use of qualitative and quantitative methodologies yields a richer understanding of the data than either would yield in the absence of the other. This dual approach to research is not, however, void of problems to which the researchers must attend. There is a risk involved in having the same data subjected to both a qualitative and quantitative analysis, particularly when the results do not agree or are mixed. Additionally, the use

of both quantitative and qualitative analyses is often difficult if not impossible when the data base does not lend itself to dual analysis. And finally, in many instances it is difficult to find appropriate instruments to ascertain the validity of the hypotheses constructed on the basis of qualitative analysis.

REFERENCES

Altmann, J. Observational study of behavior: sampling methods. Behaviour, 1974, 49, 227-267.

Bridgman, P. W. The way things are. Cambridge: Harvard University Press, 1966.

Campbell, D. T. Qualitative knowing in action research. Kurt Lewin Award Address. Presented to the meeting of the American Psychological Association, New Orleans, September 1, 1974.

Campbell, D. T. & Fiske, D. W. Convergent and discriminant validation by multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.

Cohen, M. W. Student influence in the classroom. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada, March 28, 1978.

Denzin, N. K. (Ed.) Sociological methods--A sourcebook. Chicago: Aldine Publishing, 1970.

Fiedler, M. L. Bidirectionality of influence in classroom interaction. Journal of Educational Psychology, 1975, 67, 735-744.

Glaser, B. G. The constant comparative method of qualitative analysis. In G. J. McCall & J. L. Simmons (Eds.), Issues in participant observation: A text and reader. Reading, Mass.: Addison-Wesley, 1969.

Glaser, B. G. & Strauss, A. L. The discovery of grounded theory. Chicago: Aldine Publishing, 1967.

Gold, R. L. Roles in sociological field observation. Social Forces, 1958, 36, 217-223.

Homans, G. C. Sentiments and activities: Essays in social science. New York: Free Press of Glencoe, 1962.

Jones, E. E. & Thibaut, J. W. Interaction goals as bases of inference in interpersonal perception. In R. Tagiuri & L. Petrullo (Eds.), Person perception and interpersonal behavior. Stanford, Calif.: Stanford University Press, 1958.

Junker, B. H. Field work: An introduction to the social sciences. Chicago: University of Chicago Press, 1960.

McGrath, J. E. & Altman, I. Small group research: A synthesis and critique of the field. New York: Holt, Rinehart & Winston, 1966.

Omark, D. R., Fiedler, M. L., & Marvin, R. S. Dominance hierarchies: observational techniques applied to the study of children at play. Instructional Science, 1976, 5, 403-423.

Polanyi, M. Personal knowledge: Towards a post-critical philosophy. New York: Harper & Row, 1958.

Smith, L. M. & Geoffry, W. The complexities of an urban classroom. New York: Holt, Rinehart & Winston, 1968.

Smith, L. M. & Pohland, P. A. CAI Fieldwork methodology: Grounded theory and educational ethnography. St. Ann, Mo.: CEMREL, 1969. Mimeo.

Smith, L. M. & Schumacher, S. Extended pilot trials of the aesthetic education program: A qualitative description, analysis and evaluation. St. Ann, Mo.: CEMREL, 1972.

Trow, M. Comment on "participant observation and interviewing: A comparison." In G. J. McCall & J. L. Simmons (Eds.), Issues in participant observation: A text and reader. Reading, Mass.: Addison-Wesley, 1969.

Webb, E. J., Campbell, D. T., Schwartz, R. D., & Sechrest, L. Unobtrusive Measures: Nonreactive research in the social sciences. Chicago: Rand McNally, 1966.

Wood, C. J. The attempted use of participatory strategies in a localist educational task group: A description and analysis. Unpublished doctoral dissertation, Washington University, 1977.

Zelditch, M., Jr. Some methodological problems of field studies. In G. J. McCall & J. L. Simmons (Eds.), Issues in participant observation: A text and reader. Reading, Mass.: Addison-Wesley, 1969.